Realistic Tank Controller V2.0 by BoneCracker Games

With this package, you can build your high customizable battle tanks for your project just in few minutes.

No any single hinge joint used on tank track, therefore system is running at best performance, without weird physics glitches and bugs. Based on mesh blending.

Youtube Playlist;

https://www.youtube.com/playlist?list=PLRXTqAVrLDpqR7D2i3e87ImaEs8IwBMr1

You can find unreleased new updates, tutorial videos, and new documentations on;

http://www.bonecrackergames.com/realistic-tank-controller

Contents

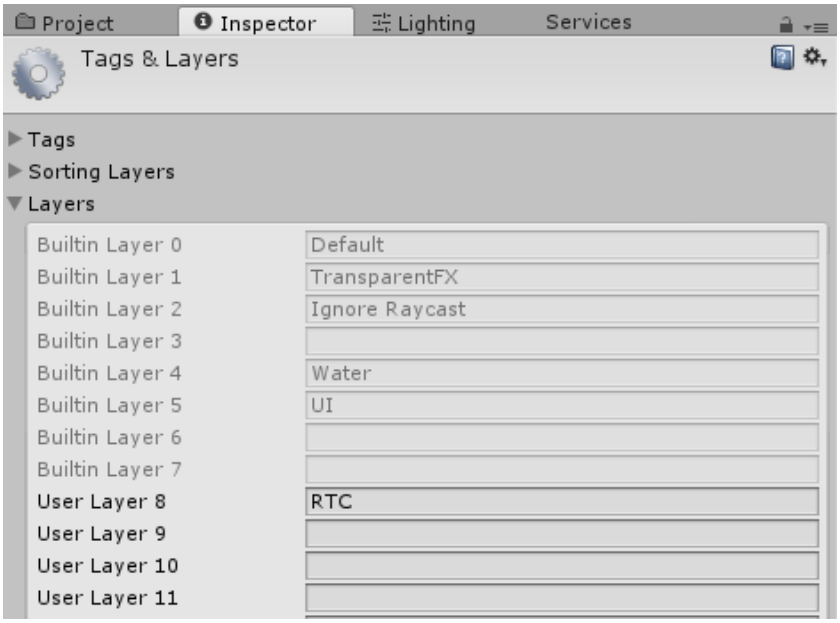
First to Do!

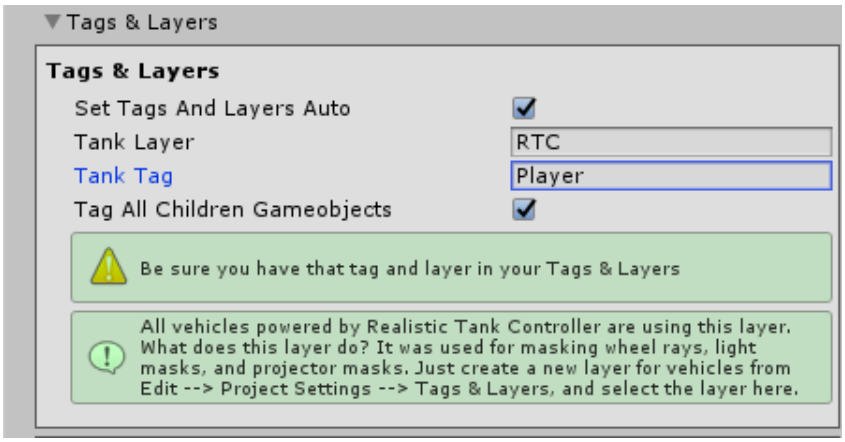
Always backup your project before updating any asset or Unity Editor.

Keep your own assets outside from RealisticTankController folder.

Delete the entire folder, and import updated version.

This version of the Realistic Tank Controller is using LayerMask for avoiding unwanted raycast hits and ignoring unnecessary projector layers. Just create one layer for vehicles, and select it in RTC Settings.

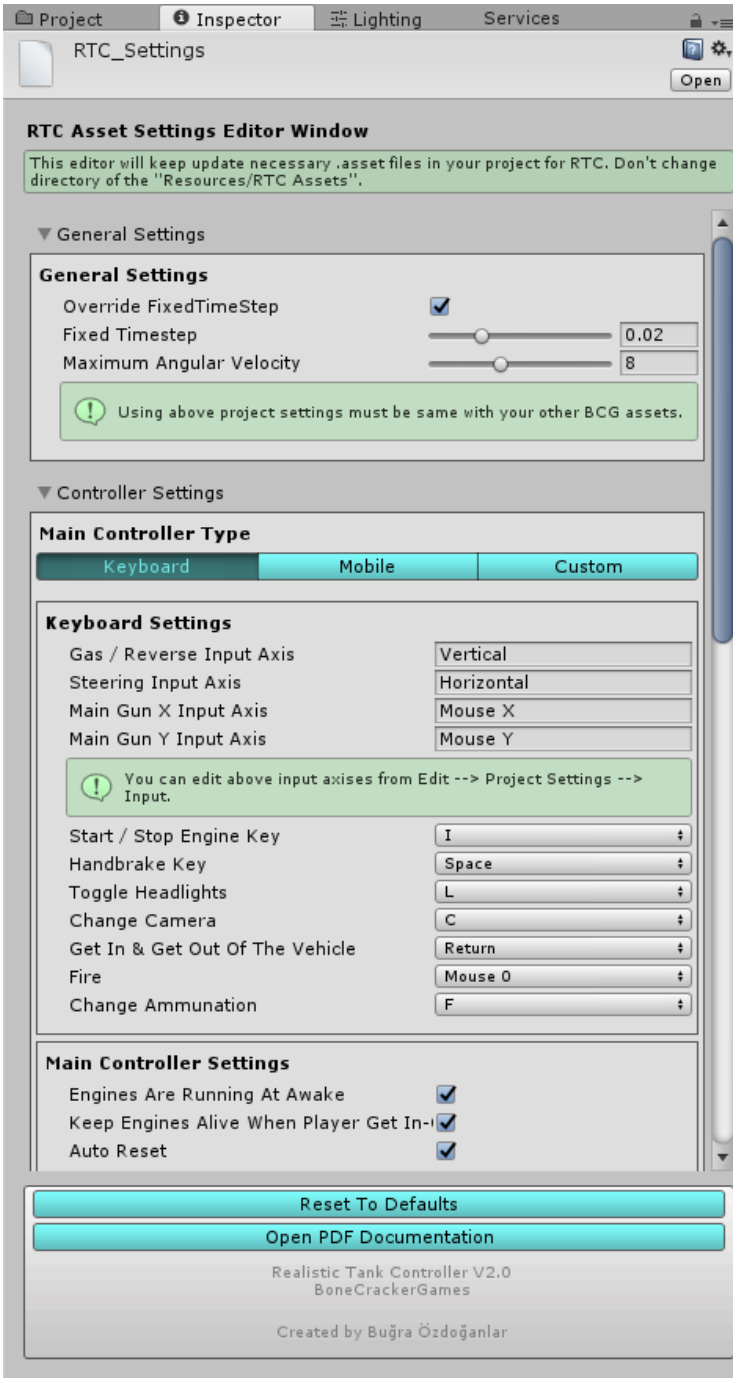


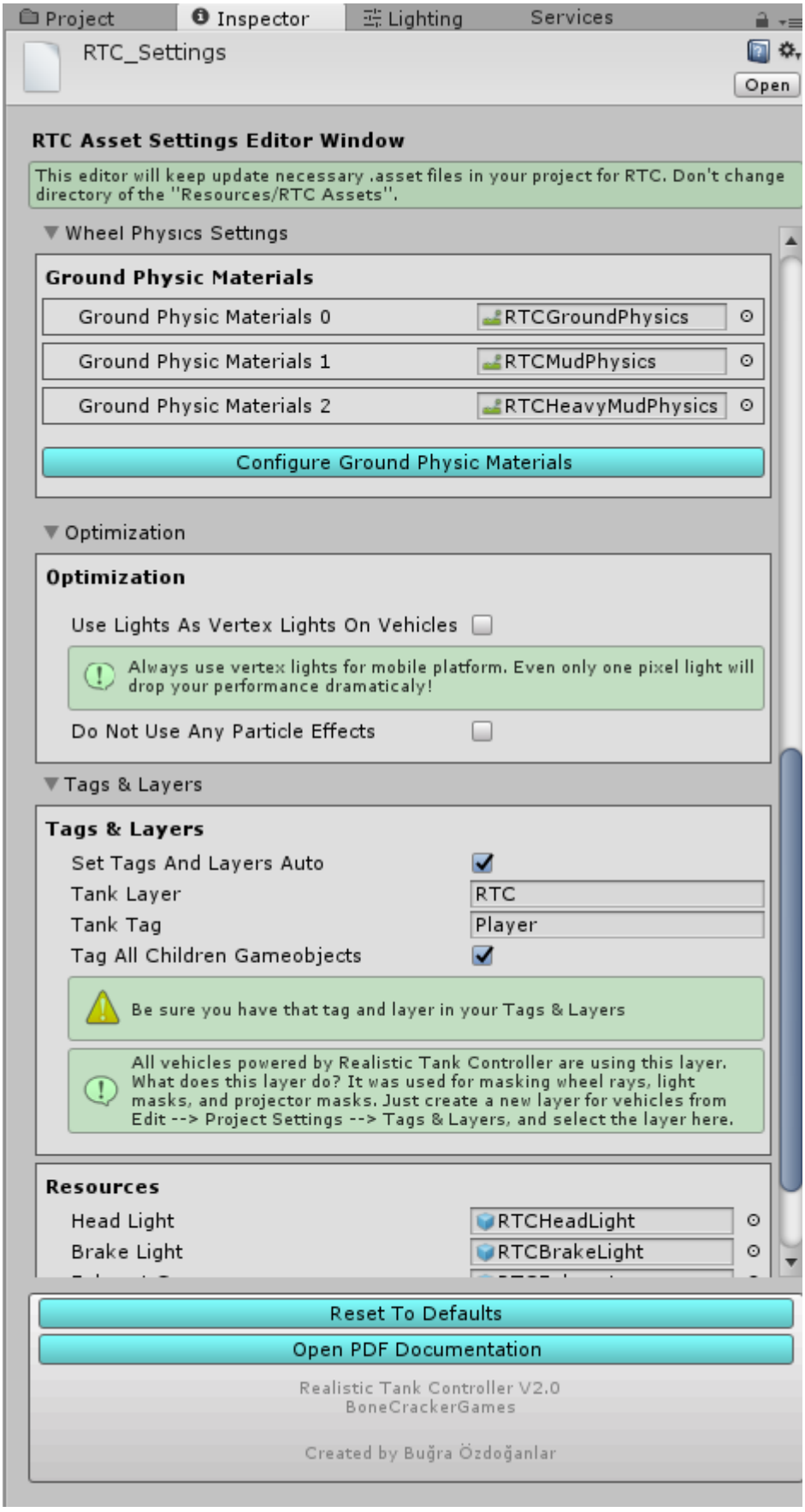


(You can zoom in with CTRL + ScrollUp for enlarge PDF pages)

RTC Settings

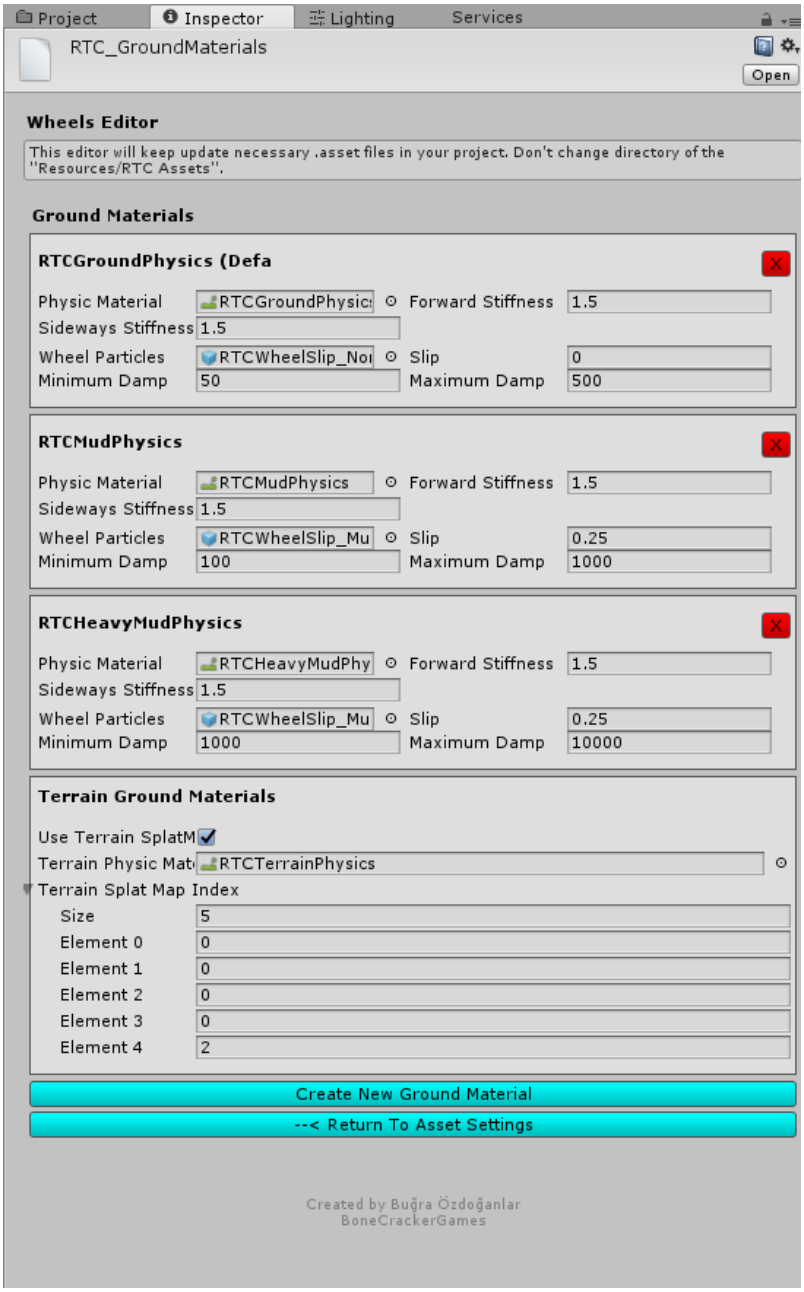
Main RTC Settings. It's shared by all vehicles powered by Realistic Tank Controller. You can access RTC Settings from Tools → BoneCracker Games → Realistic Tank Controller → RTC Settings.




Project
Inspector
Lighting
Services
RTC_Settings
Open
RTC Asset Settings Editor Window
This editor will keep update necessary .asset files in your project for RTC. Don't change directory of the "Resources/RTC Assets".
Wheel Physics Settings
Ground Physic Materials
Ground Physic Materials 0
RTCGroundPhysics
Ground Physic Materials 1
RTCMudPhysics
Ground Physic Materials 2
RTCHeavyMudPhysics
Configure Ground Physic Materials
Optimization
Optimization
Use Lights As Vertex Lights On Vehicles
Always use vertex lights for mobile platform. Even only one pixel light will drop your performance dramaticaly!
Do Not Use Any Particle Effects
Tags & Layers
Tags & Layers
Set Tags And Layers Auto
Tank Layer
RTC
Tank Tag
Player
Tag All Children Gameobjects
Be sure you have that tag and layer in your Tags & Layers
All vehicles powered by Realistic Tank Controller are using this layer. What does this layer do? It was used for masking wheel rays, light masks, and projector masks. Just create a new layer for vehicles from Edit --> Project Settings --> Tags & Layers, and select the layer here.
Resources
Head Light
RTCHeadLight
Brake Light
RTCBrakeLight
Reset To Defaults
Open PDF Documentation
Realistic Tank Controller V2.0
BoneCrackerGames
Created by Buğra Özdoğanlar

Ground Materials

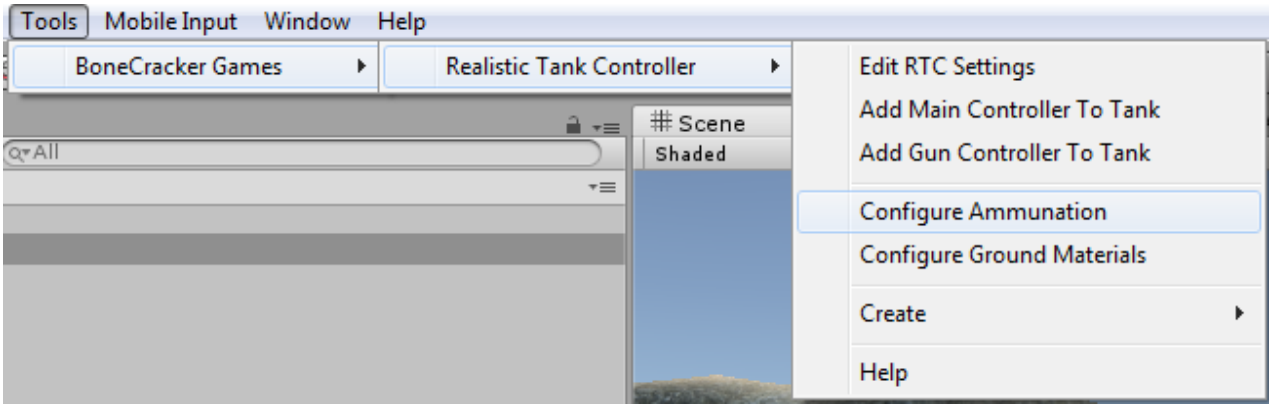
Creating or changing ground materials physics, particles, damps, sounds, etc in **Tools → BoneCracker Games → Realistic Tank Controller → Configure Ground Materials**.

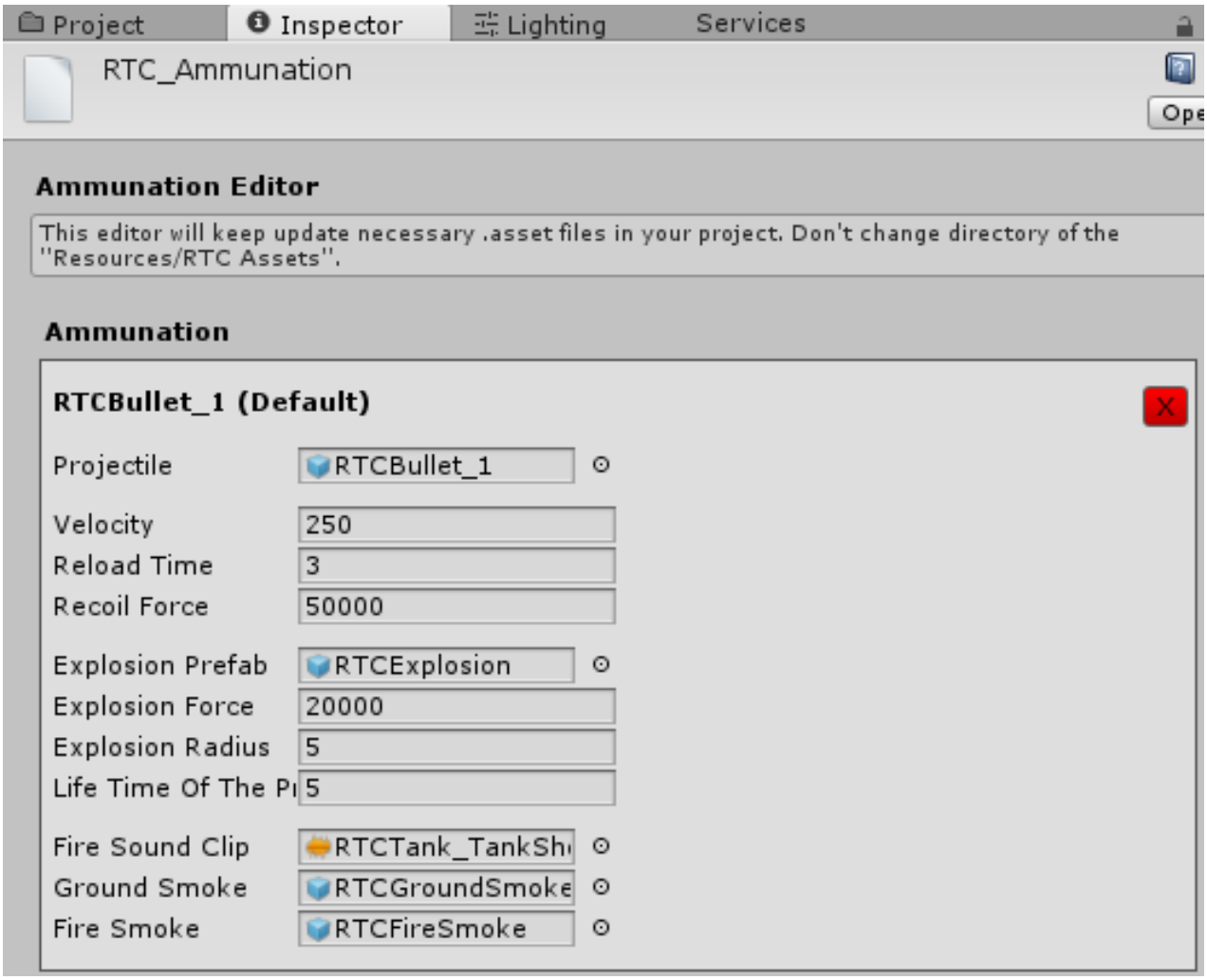


How does it work? If WheelCollider hits a collider with one of the physic material in list, changes will be applied.

Ammunation

Creating or changing projectiles and their attributes from Tools → BoneCracker Games → Realistic Tank Controller → Configure Ammunation.

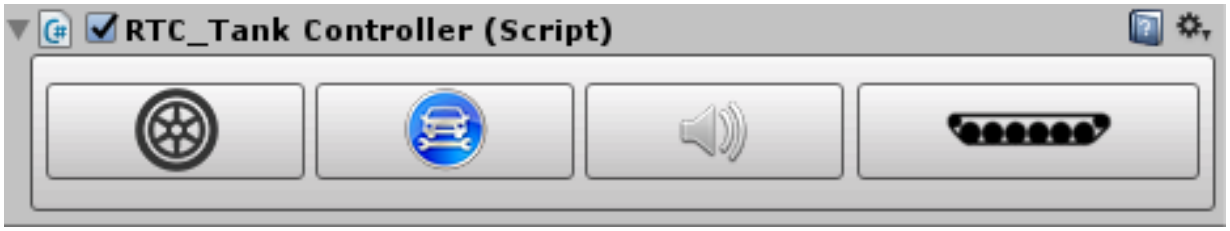


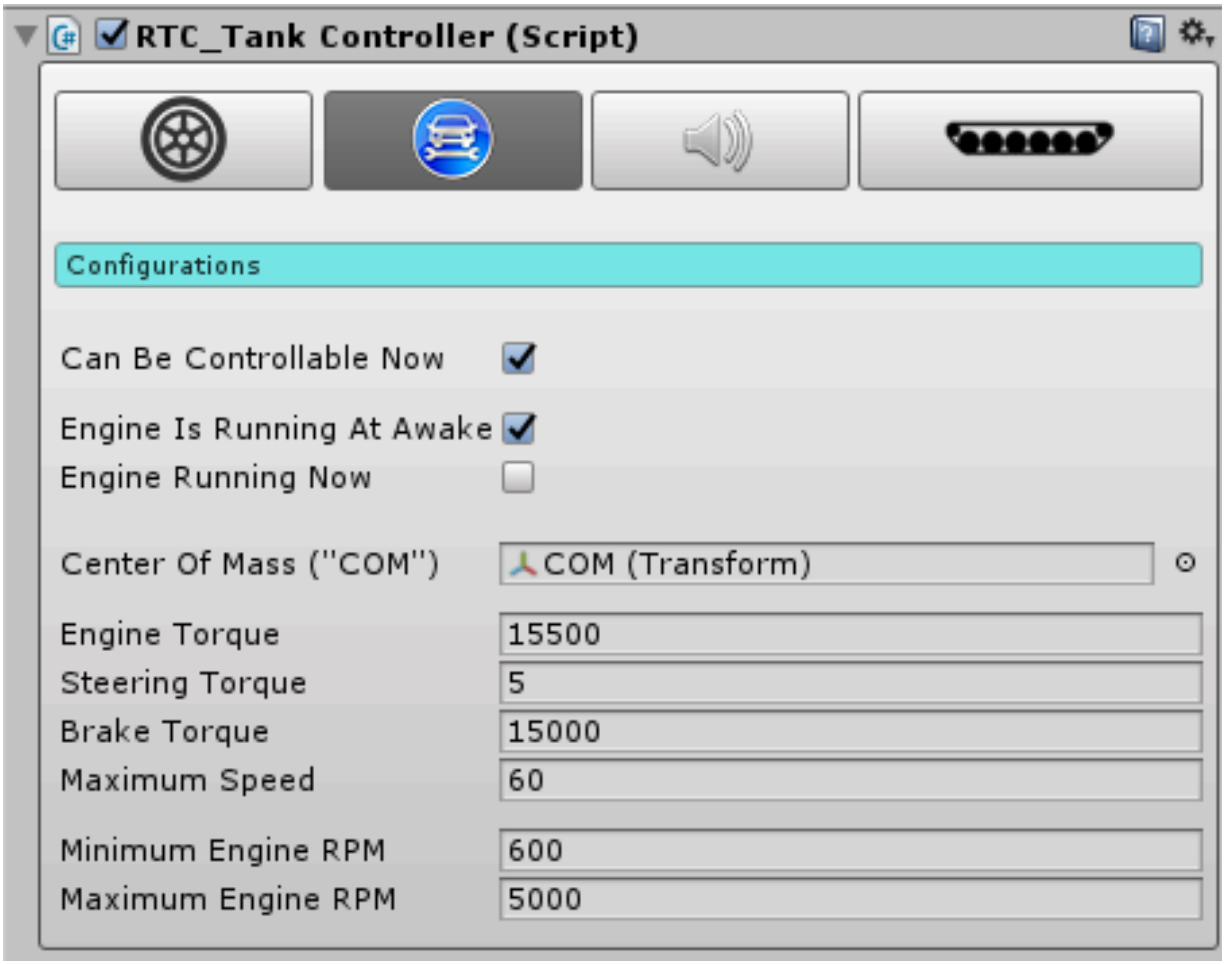


Main Tank Controller

RTC_TankController.cs is managing drivetrain, inputs, sounds, and tracks. Just one component includes 4 main categories;

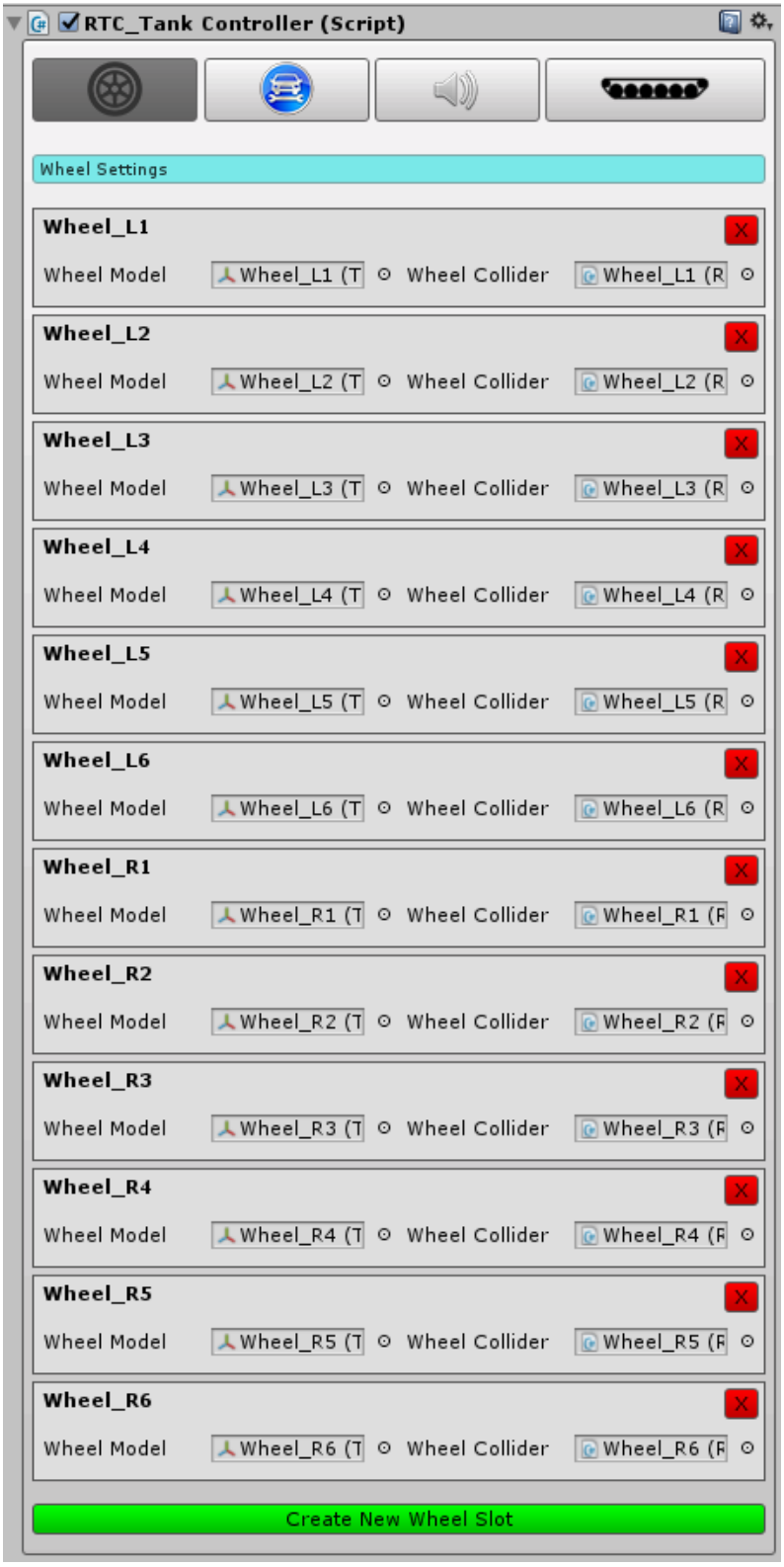
Wheels, Configurations, Sounds, and Tracks.





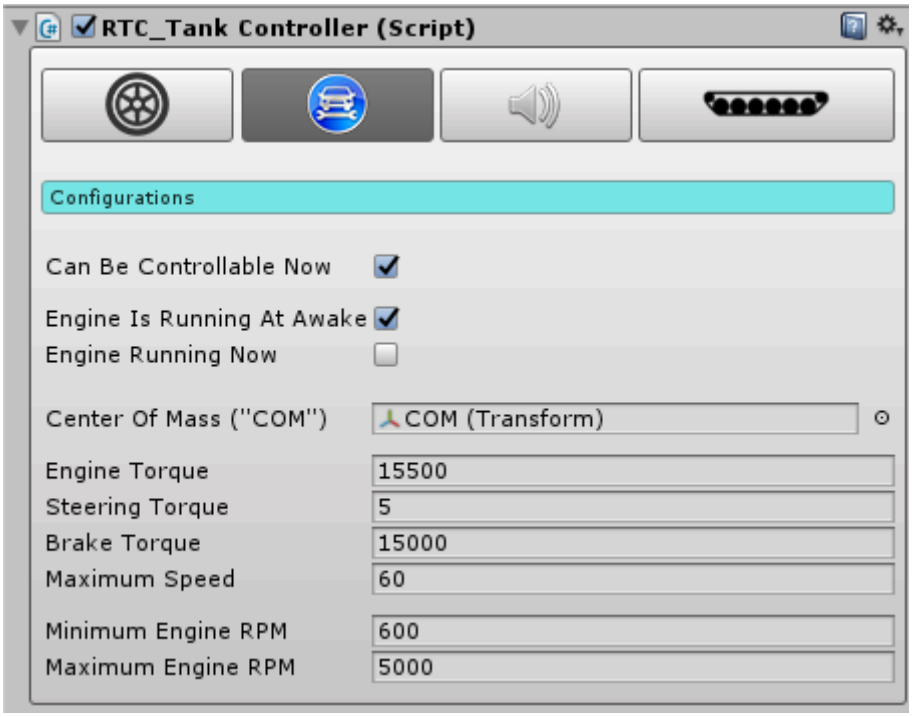
Wheels

All of your wheel models and their colliders are managing down here. Creating new wheel is simple. Create a new wheel slot and select your wheel model. And then create wheelcollider. That's it.



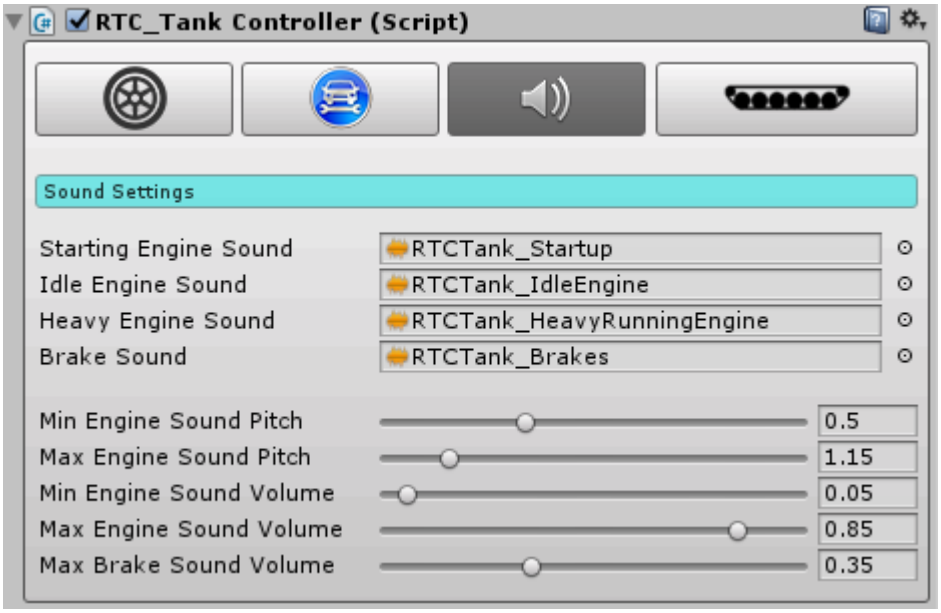
Configurations

You can edit engine torque, steering torque, maximum speed, and other attributes of your tank here.



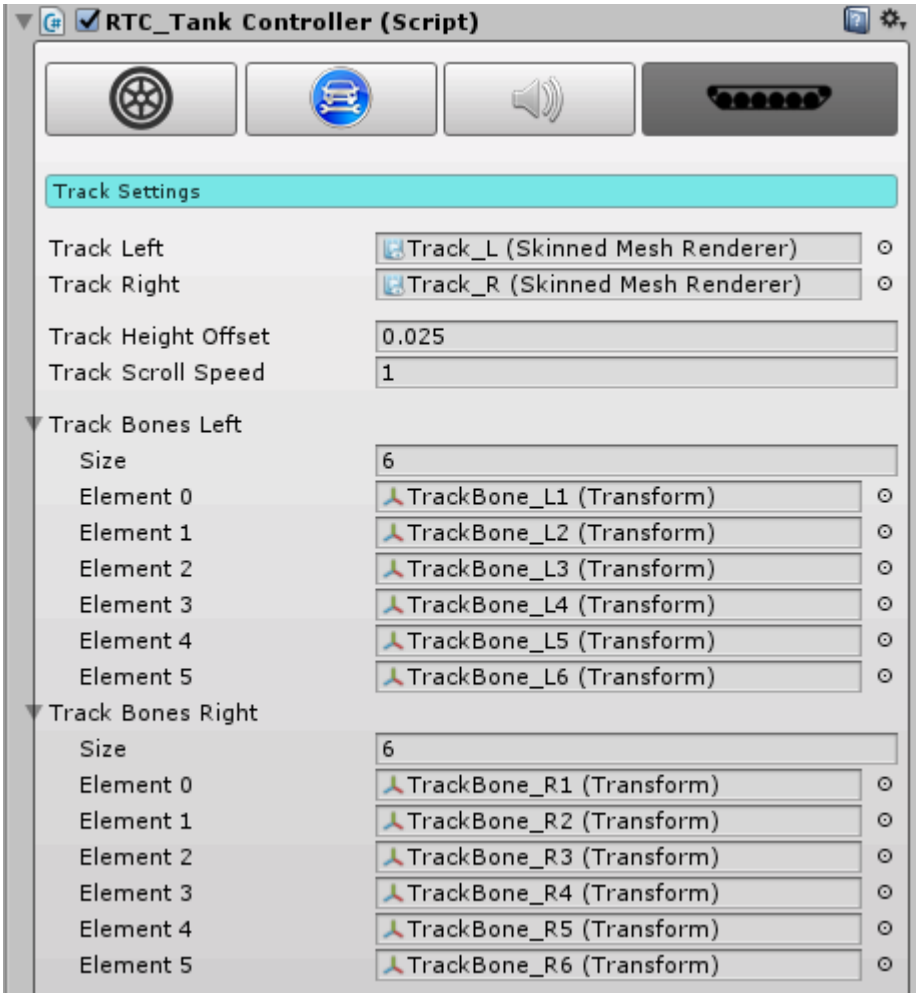
Sounds

You can edit engine sound, brake sound, idle sound here.

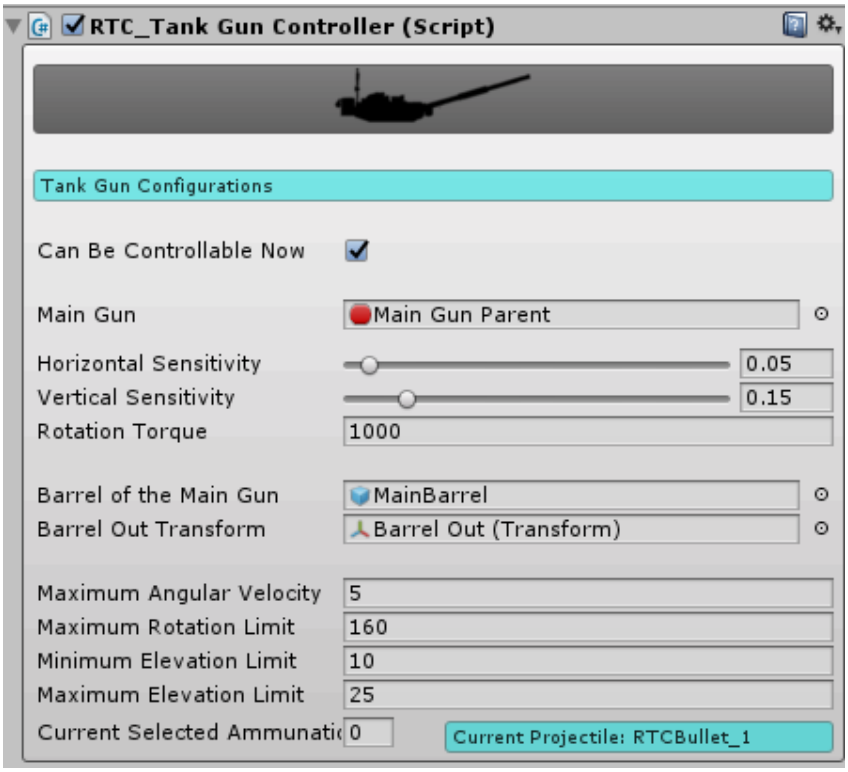


Tracks

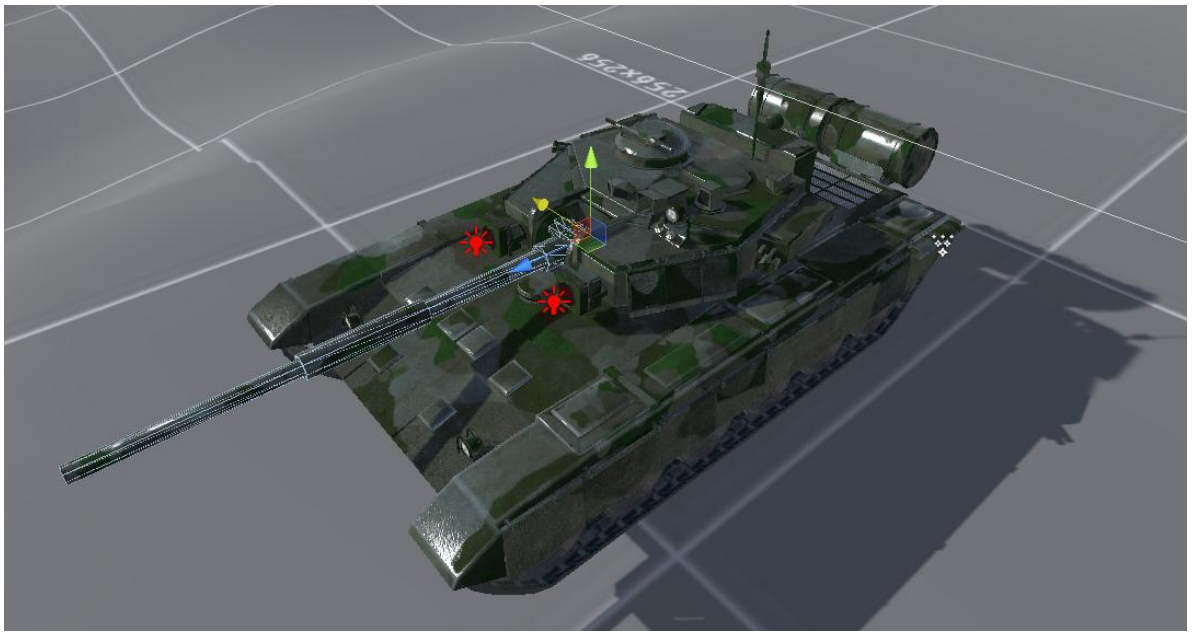
You can edit tracks and other visuals of your tank here.

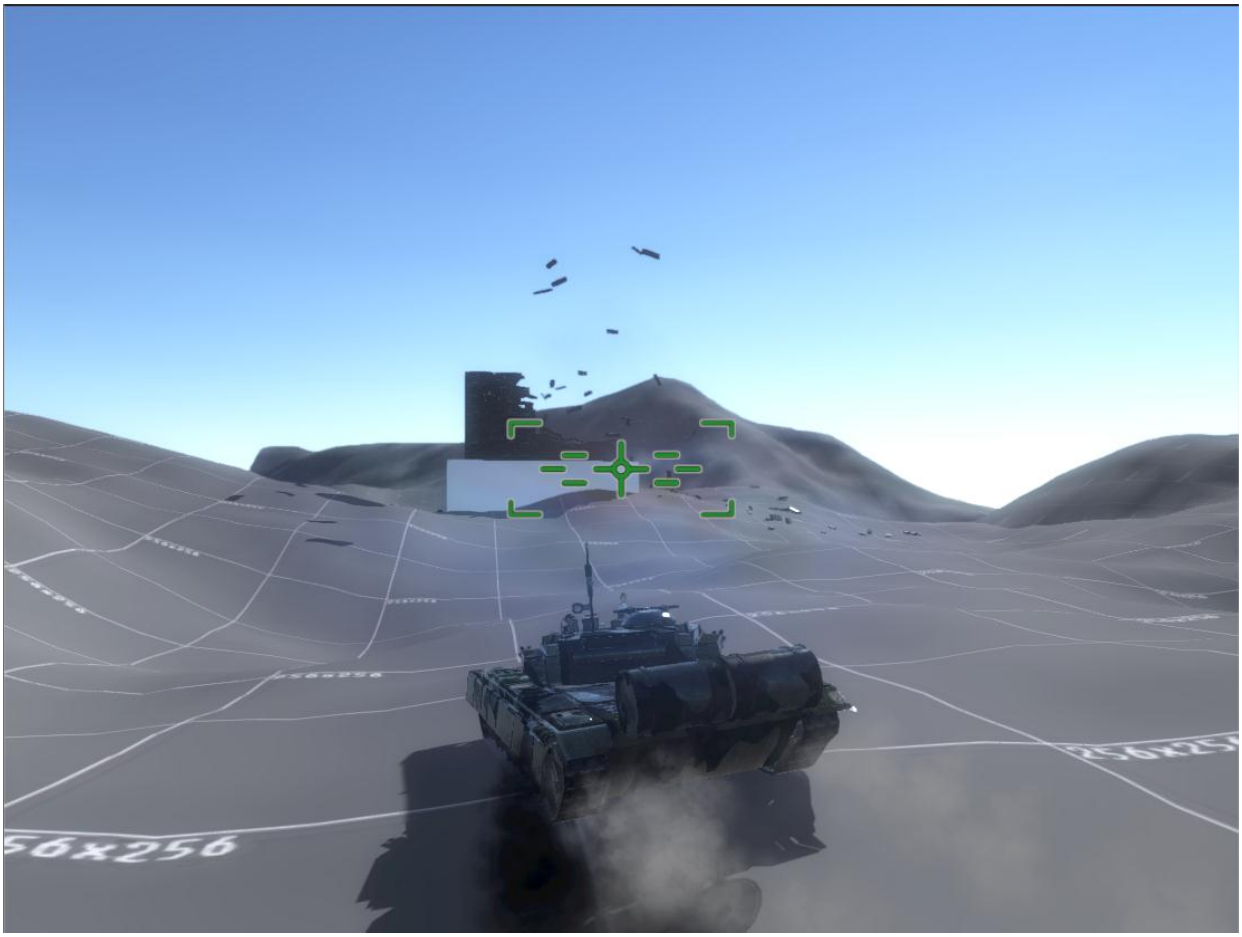


Main Gun Controller



RTC_TankGunController.cs is managing control of the main gun. It uses HingeJoint for rotating the gun. All settings are clearly understandable I think. There is one important thing about barrel mesh. Your barrel pivot position must be placed to elbow. Just like this;

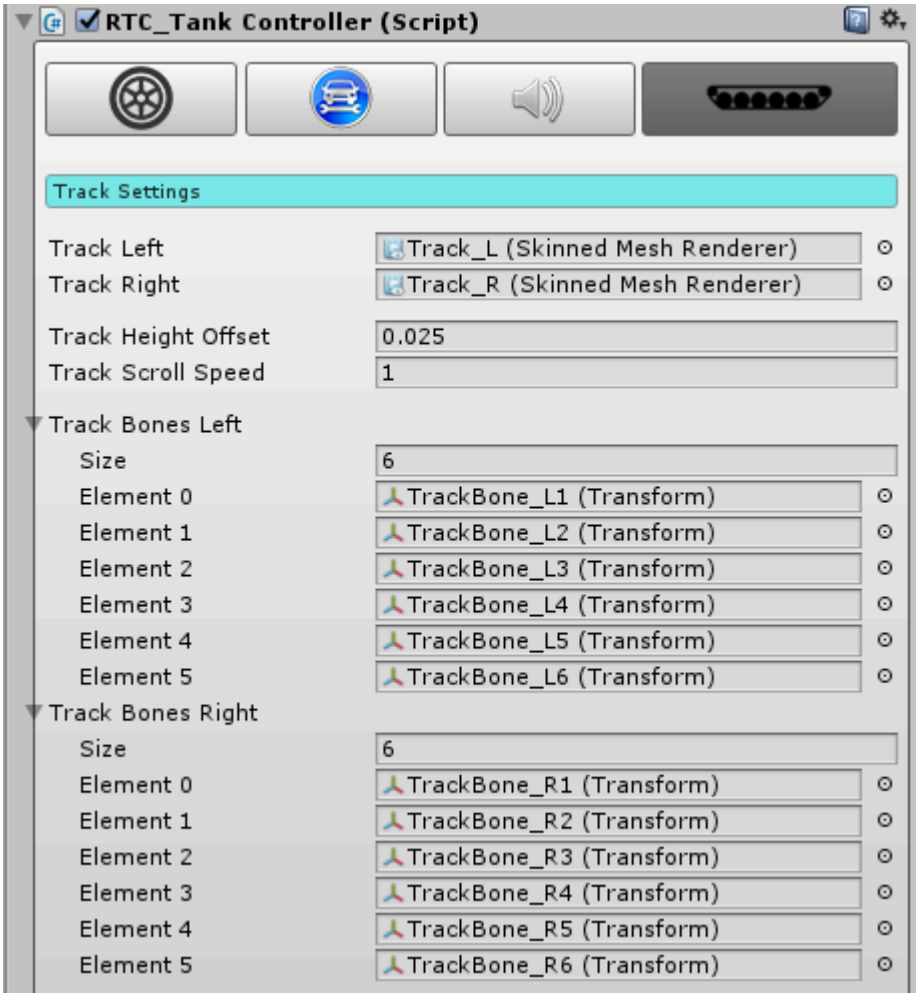




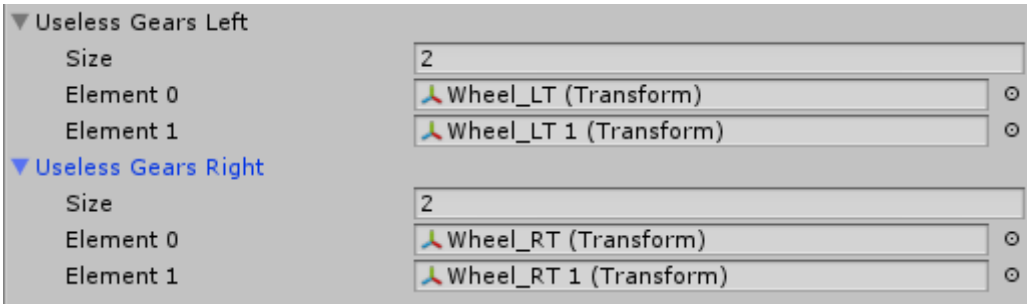
If you are getting trouble with creating tank setup, just check demo scene and prefabs. If you need to ask anything about package, just e-mail me!

Tracks

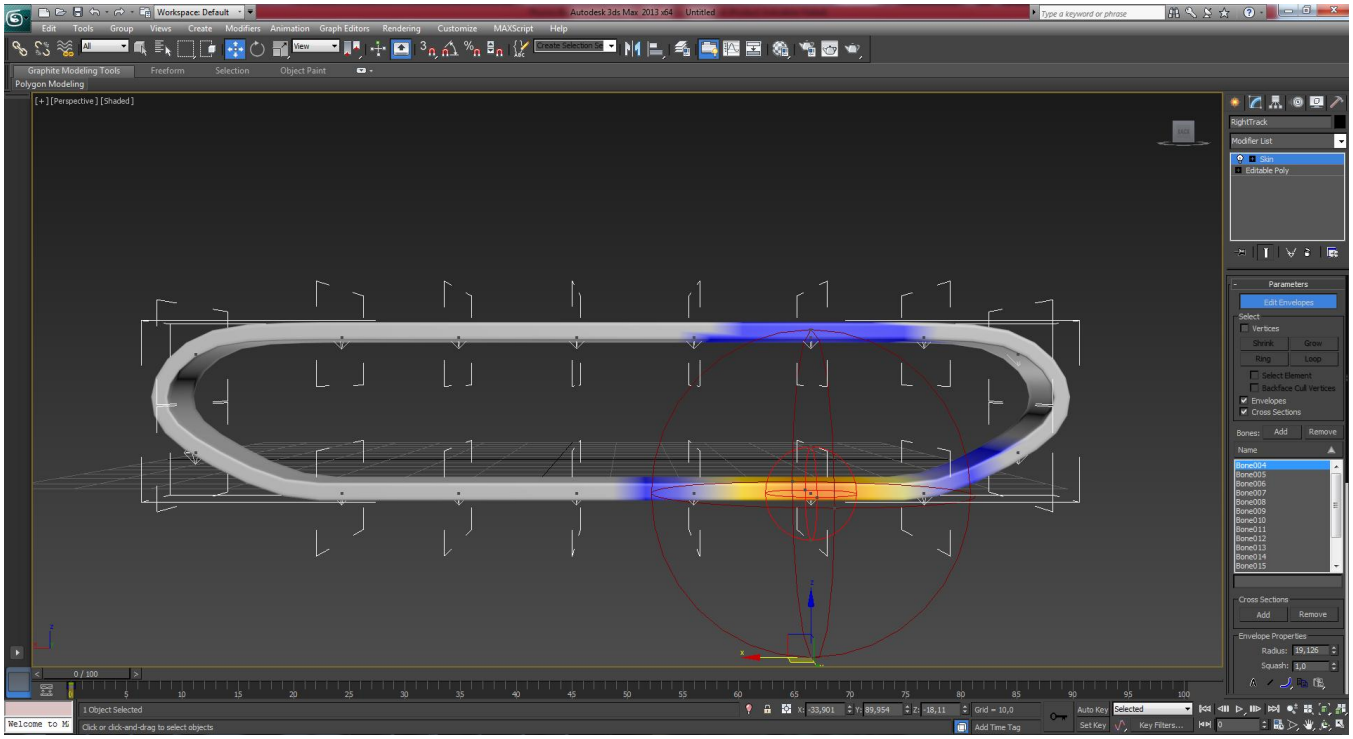
Tracks, bones, and other visuals.

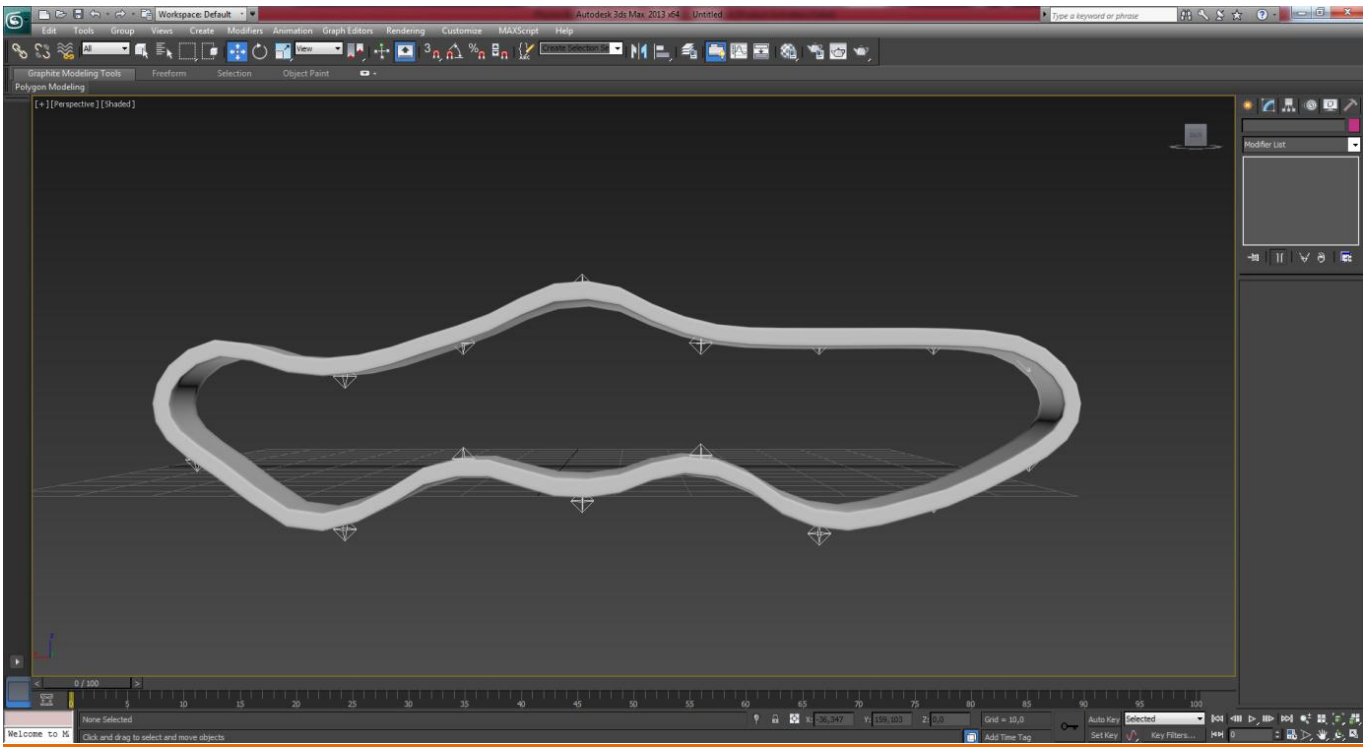


After track bones setup, you will find useless gear transforms. Actually, these are gears above wheels, and tense system for tracks. If you don't have any gears, leave them.

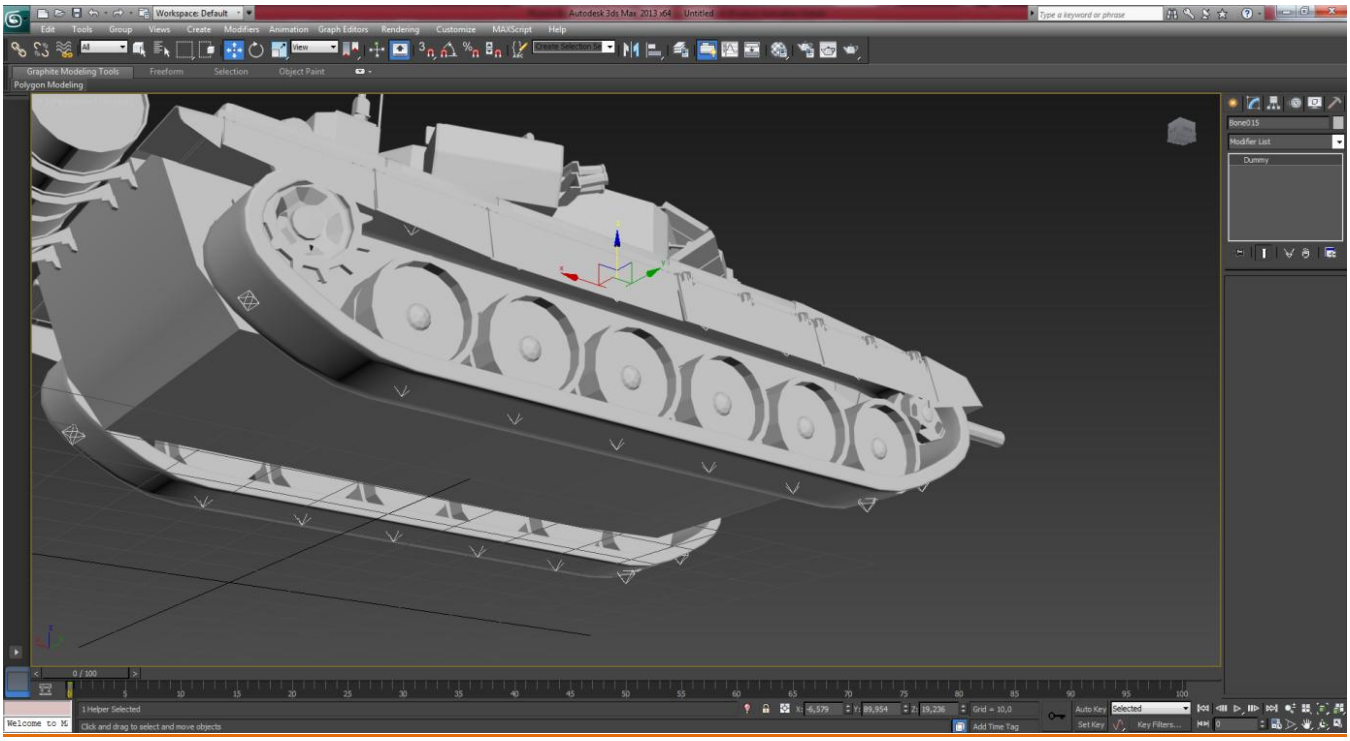


Tracks are actually skinned meshes, and designed in 3ds max modeling software. Each track contains 16 bones. Top side of bones are useless, but you have to create them too for realistic bending.





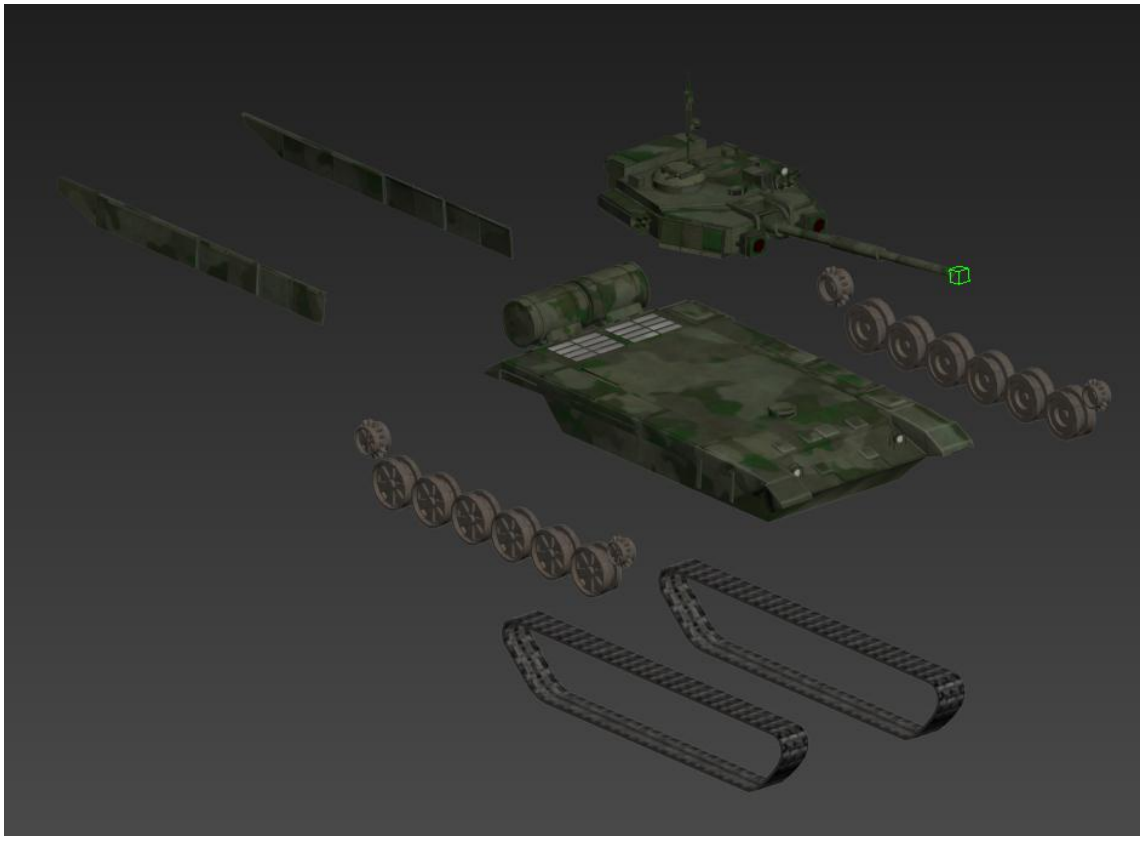
Buttom side of bones should be exactly at same line with above correspoing wheel like this;

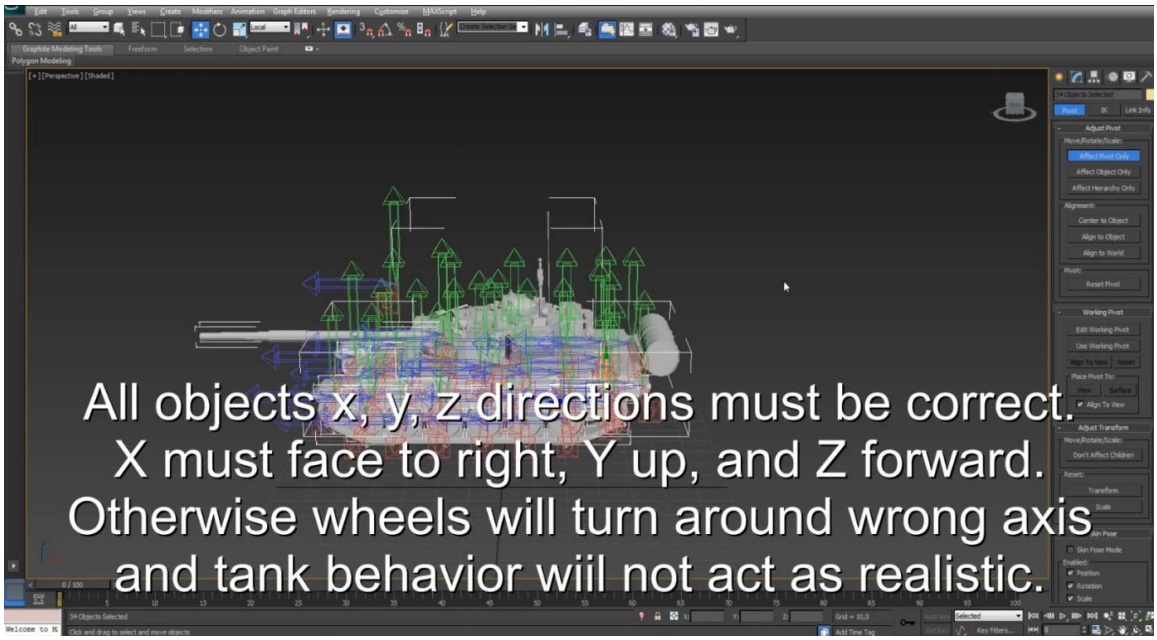


Package contains preconfigured tank track for 6 wheel vehicles. If you are getting trouble with creating new track for various number of wheel tanks, you can contact me.

How to Create a New Tank

First of all, your tank model must be rigged first. All of wheels, main gun, barrel, and all individual parts must be unique gameobject. Like this;

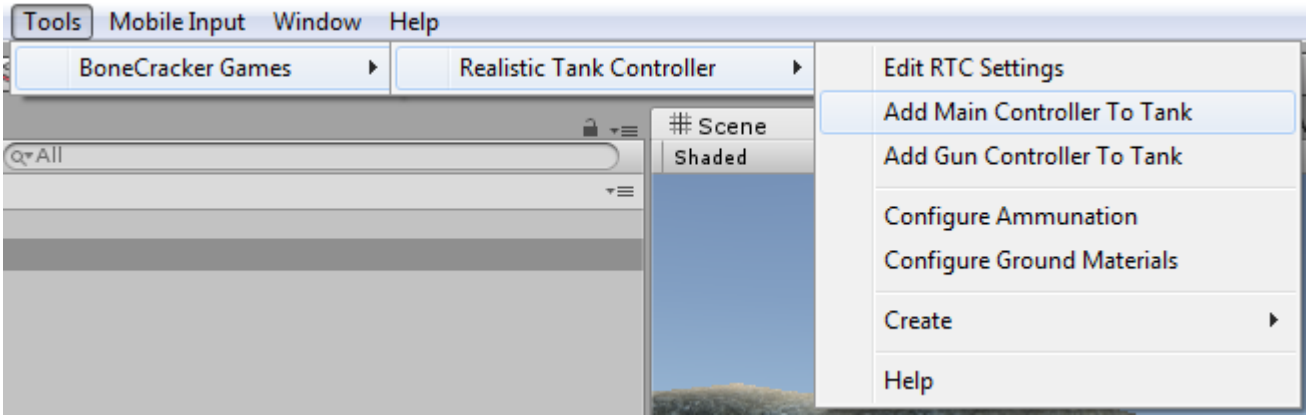




If your tank model is just one mesh, you have to rig it yourself. But all professional tank models are rigged nicely.

Here is a hierarchy view of the tank model. Everything is well grouped and organized;

If your model is ready to use, drag and drop your model on to your scene. Select your model on your scene, and hit **Tools → BoneCracker Games → Realistic Tank Controller → Add Main Controller To Tank**.

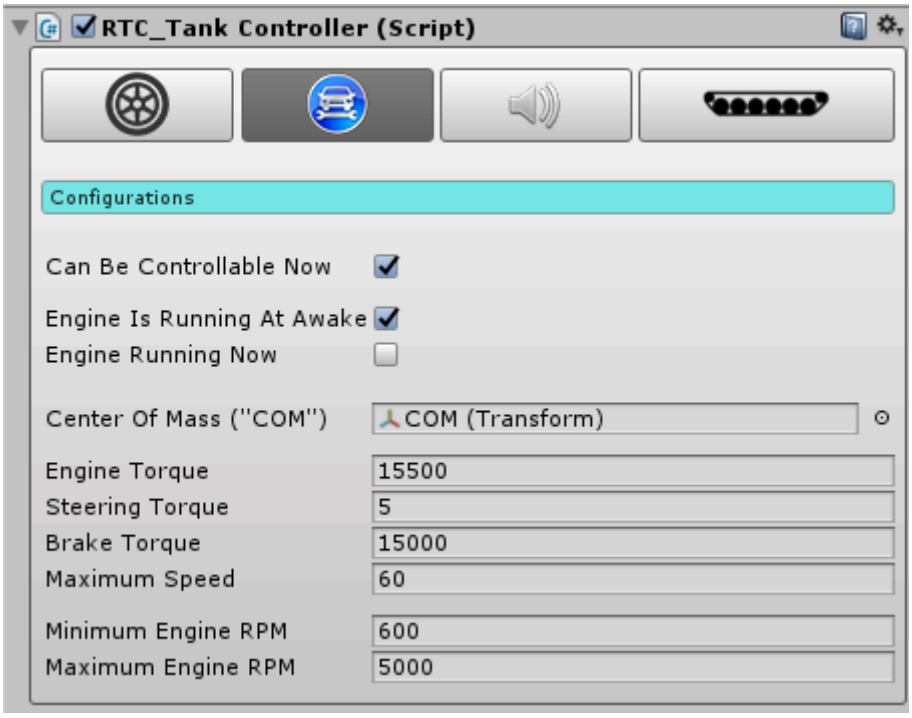


This will add the main tank controller component to your tank, and initializes for usement with default settings.

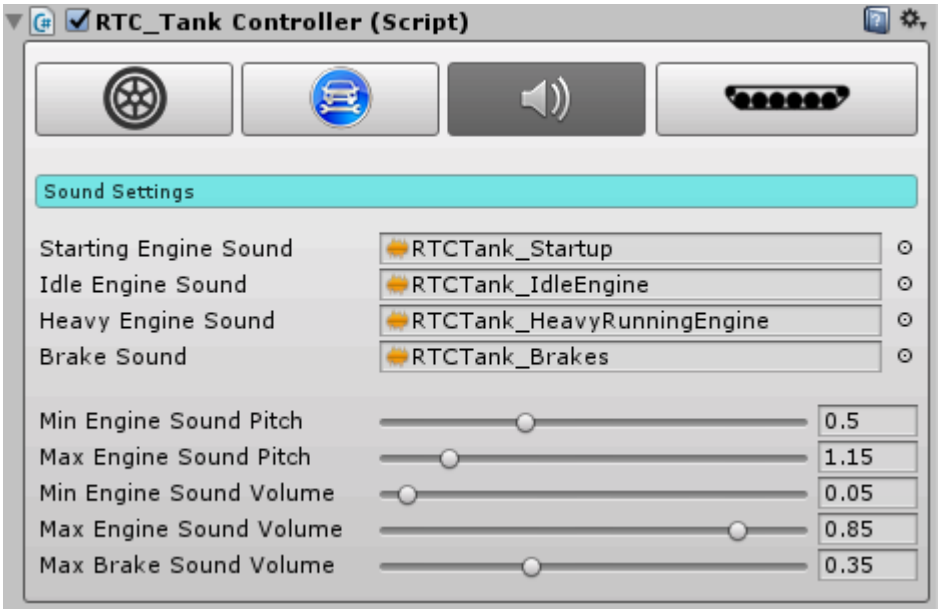
I highly recommend you to do first, is set your individual parts of your tank's name properly. E.g. First left wheel name is 1L, second left wheel name is 2L, third left wheel name is 3L...

Script needs to know your wheels, center of mass, and requires a body collider. First, open up **Wheels** category, and select all of your wheels. And then hit Create WheelCollider button for creating WheelColliders automatically.

Open up Configurations category, and edit your tank attributes here. I would do it after testing the tank. Default settings are fine. First, test your tank.

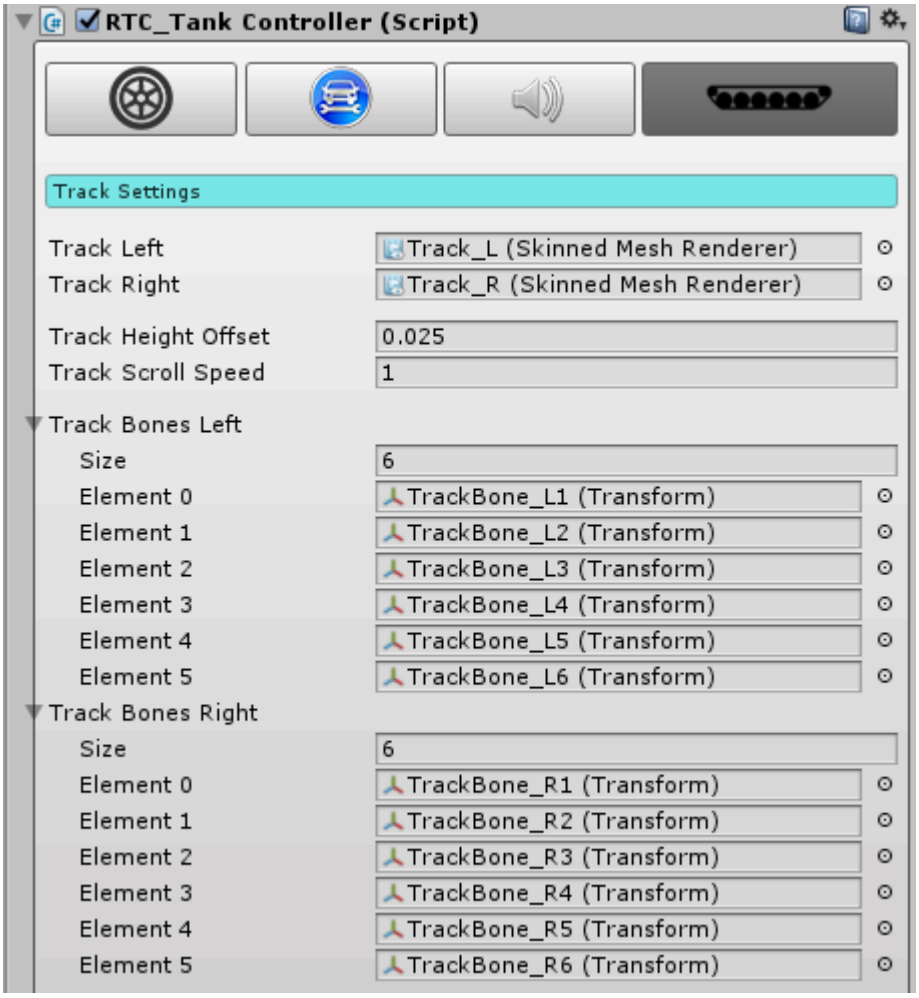


Open up Sounds category and select your engine sound, idle engine sound, heavy engine sound, and brake sound. All of them are optional, not required.



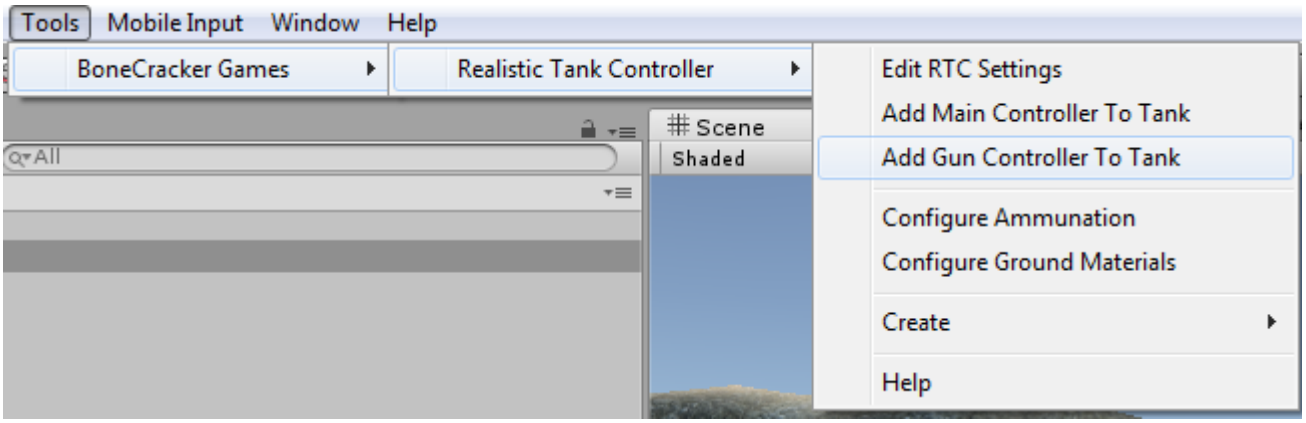
Now you have to select your rigged tracks. I included rigged track for the package, i'm not a good designer, but it will do the job . If you want to make your own track model, you have to rig your track nicely. You can also use your own tank without any rigged track. It's optional, not required. If you want to create a LAV vehicle without any tracks, you can do it.

Open up Tracks category, and select your tracks, their bones here. Also if your tank has additional moving gear parts along with wheels, you can select them here.

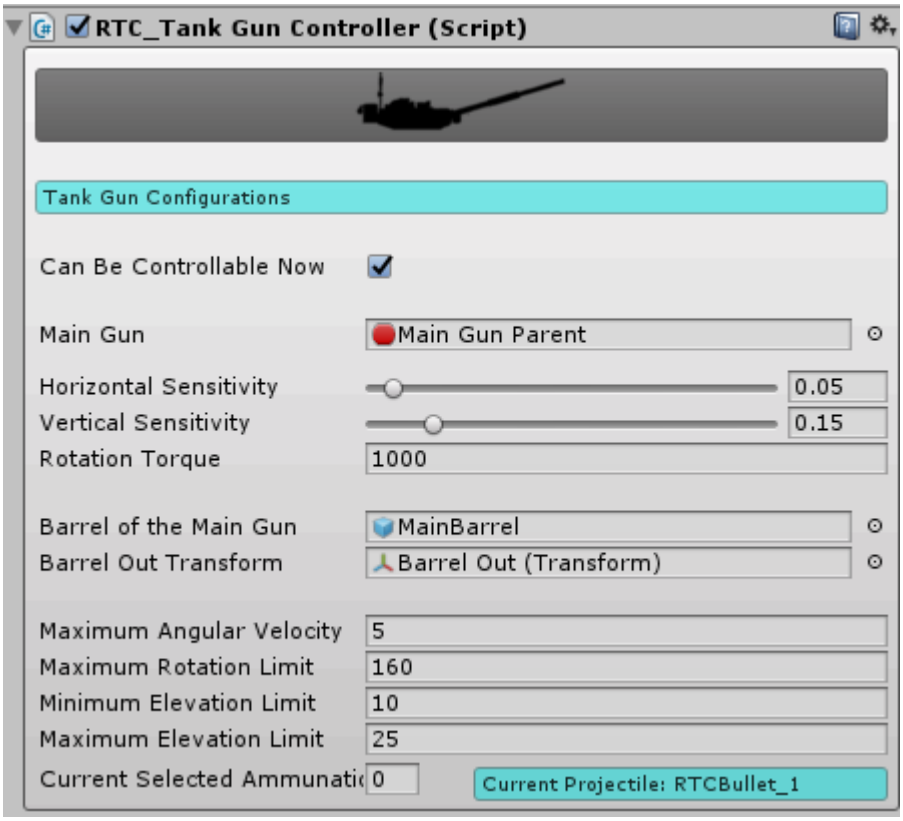


How to Add Main Gun to Tank

Select your tank on your scene, and hit Tools → BoneCracker Games → Realistic Tank Controller → Add Gun Controller To Tank.



This will add Main Gun Controller component to your tank.



This will add the main gun controller component to your tank, and initializes for usement with default settings.

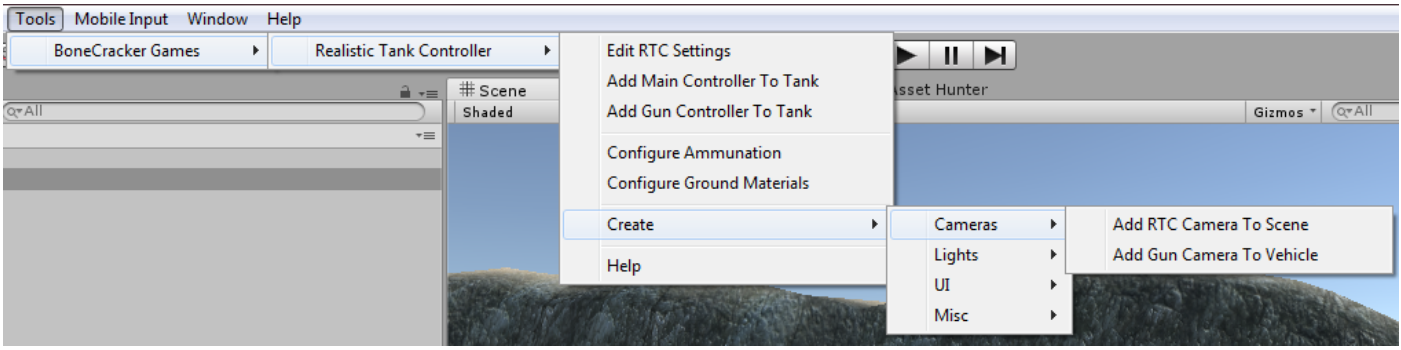
Script needs to know your Main Gun gameobject, Main Barrel gameobject, and a transform for Barrel Out. Projectile will be instantiated from this transform.

Script will create HingeJoint for main gun when you select it. You won't need to create and configurate HingeJoint for the main gun.

How to Add Cameras

Main Camera

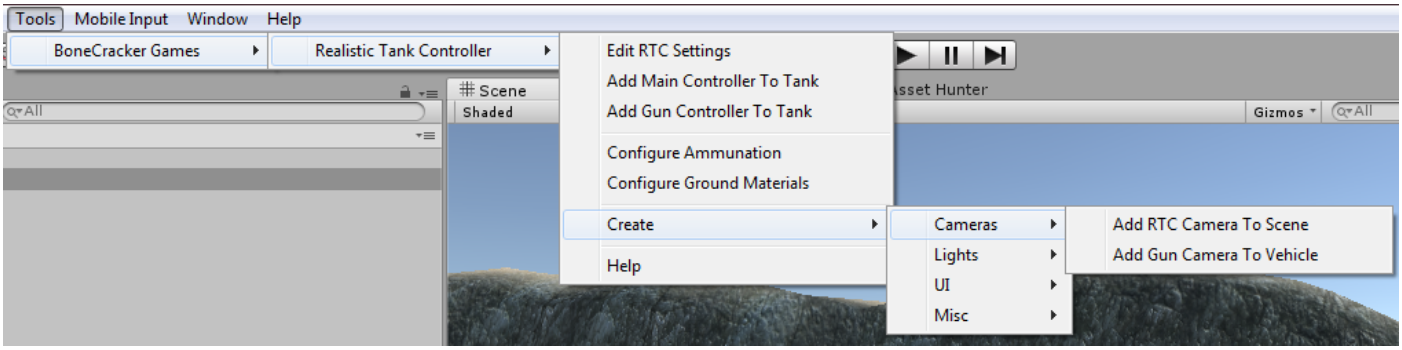
Just hit Tools → BoneCracker Games → Realistic Tank Controller → Create → Cameras → Add RTC Camera To Scene.



This will add RTC Main Camera to your scene. Each scene requires only one RTC Main Camera.

Gun Camera

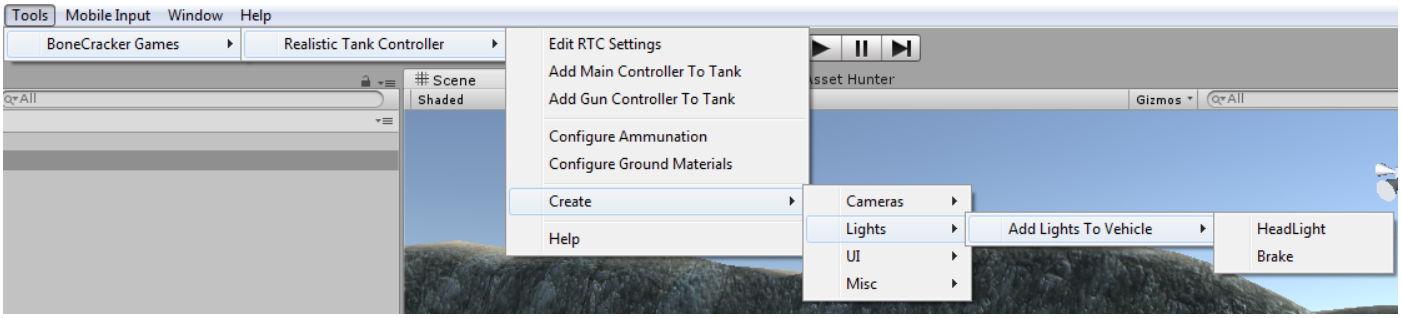
Select your tank on your scene, and hit Tools → BoneCracker Games → RTC → Create → Cameras → Add Gun Camera To Tank.



This will add Hood Camera to your tank. Adjust its position and rotation. When player pushes change camera button, RTC Main Camera will be parented to this Hood Camera.

How to Add Lights

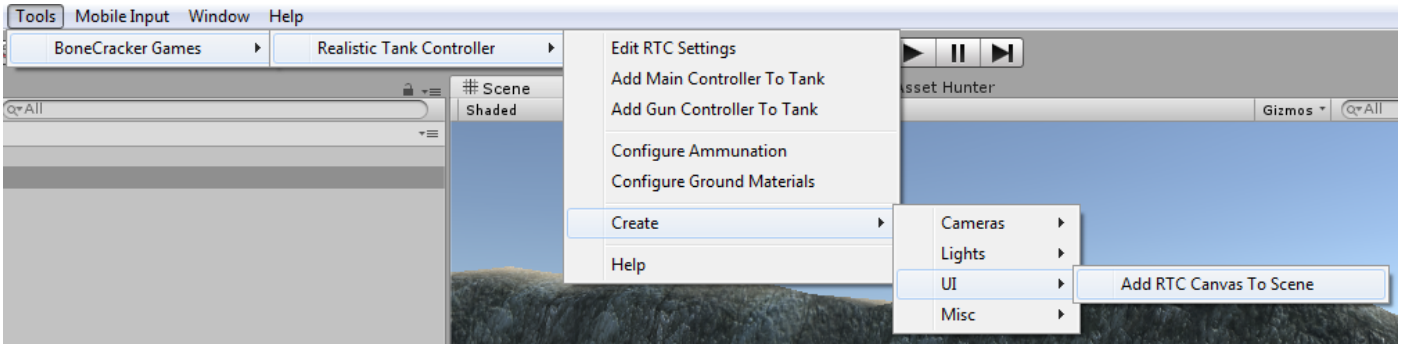
Select your tank on your scene, and hit Tools → BoneCracker Games → Realistic Tank Controller → Create → Lights → Headlight / Brake.



This will add a spot light to your tank. Adjust its position and rotation. When player pushes headlights button, light will be enabled. Renderer mode of the light is related with an option called "Use Lights As Vertex Lights" in RTC Settings.

How to Add RTC UI Canvas

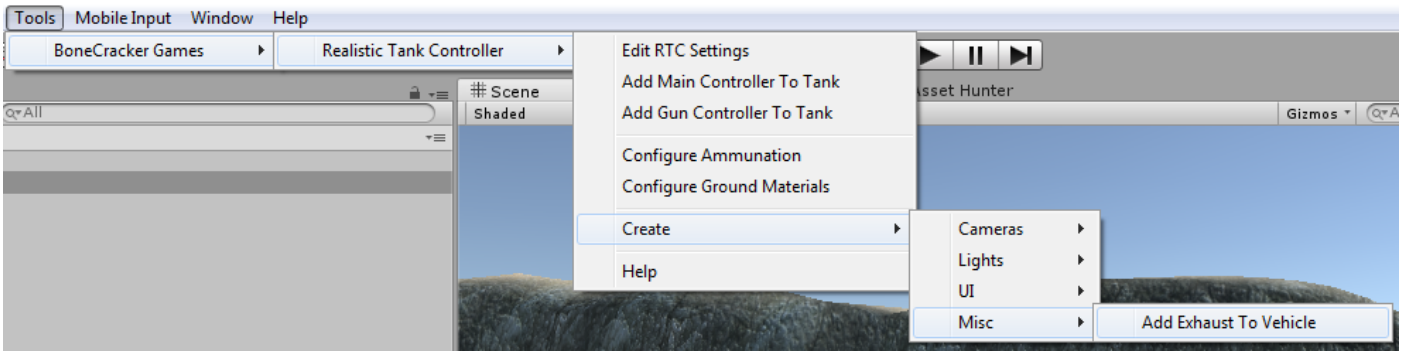
If your scene doesn't have RTC UI Canvas, you can create it from Tools → BoneCracker Games → Realistic Tank Controller → Create → UI → Add RTC UI Canvas To Scene.



This will add RTC UI Canvas to your scene. Only one RTC UI Canvas allowed on each scene.

How to Add Exhaust to Tank

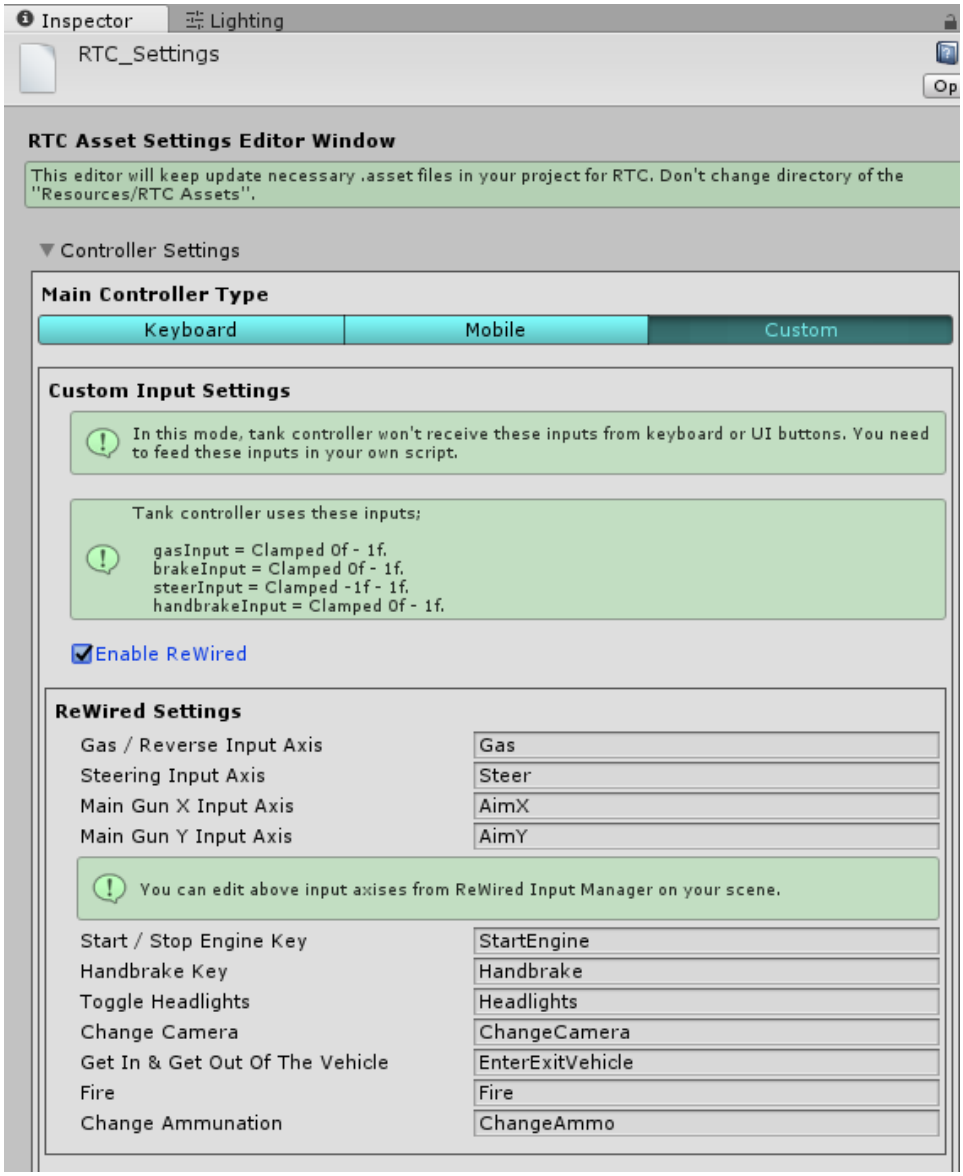
Select your tank on your scene, and hit **Tools → BoneCracker Games → Realistic Tank Controller → Create → Misc → Add Exhaust To Tank**.

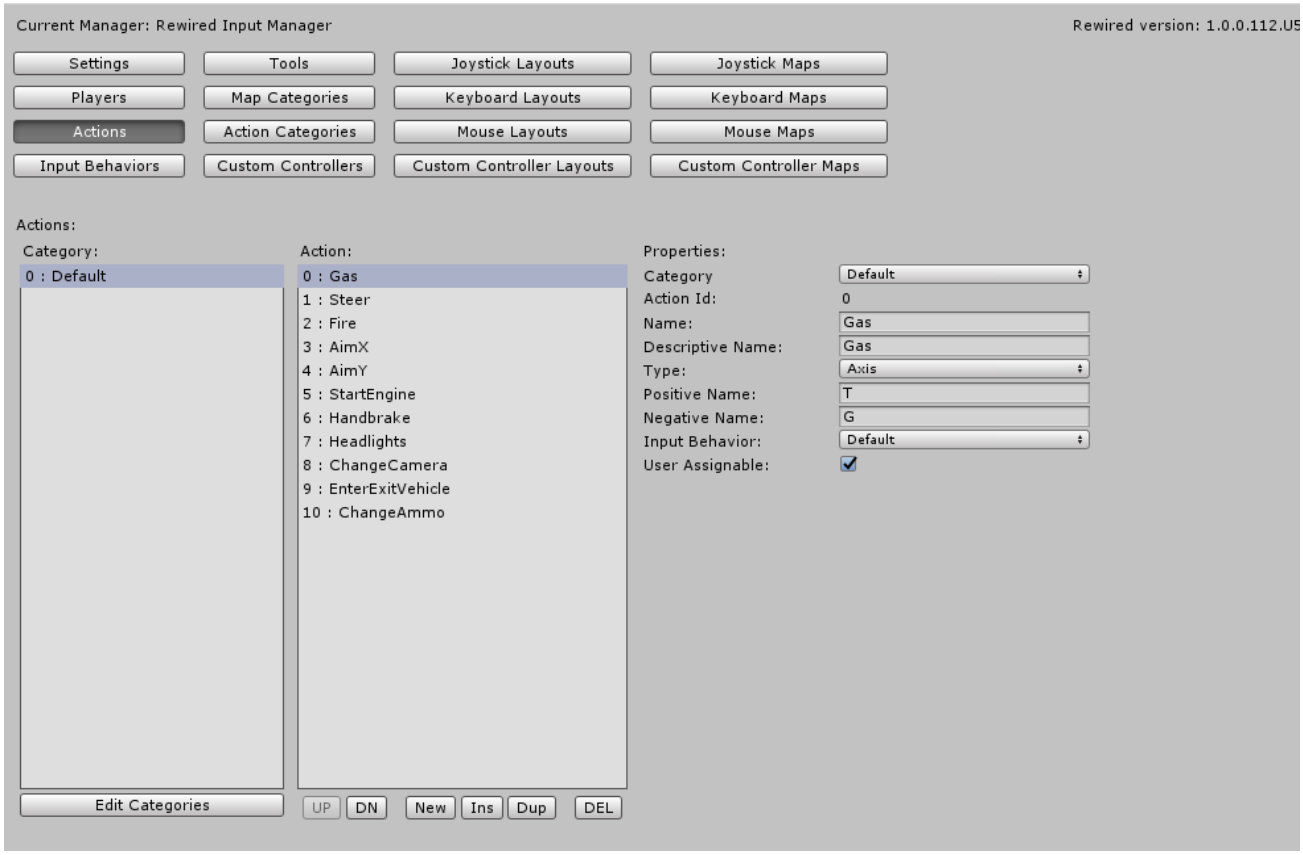


This will add new exhaust particle systems to your tank. You can edit few settings for created exhaust.

How to Use with ReWired

Go To **RTC Settings**. Switch your controller type to **Custom** mode. In this mode, you can feed the inputs yourself. Mobile UI buttons or keyboard won't feed the vehicles. There is an option for using ReWired inputs. Enable it, wait for few seconds. New inputs will pop up on RTC Settings for ReWired inputs. These input strings must be exactly same with your ReWired inputs.


Inspector
Lighting
RTC_Settings
RTC Asset Settings Editor Window
This editor will keep update necessary .asset files in your project for RTC. Don't change directory of the "Resources/RTC Assets".
Controller Settings
Main Controller Type
Keyboard
Mobile
Custom
Custom Input Settings
In this mode, tank controller won't receive these inputs from keyboard or UI buttons. You need to feed these inputs in your own script.
Tank controller uses these inputs;
gasInput = Clamped 0f - 1f.
brakeInput = Clamped 0f - 1f.
steerInput = Clamped -1f - 1f.
handbrakeInput = Clamped 0f - 1f.
Enable ReWired
ReWired Settings
Gas / Reverse Input Axis
Gas
Steering Input Axis
Steer
Main Gun X Input Axis
AimX
Main Gun Y Input Axis
AimY
You can edit above input axises from ReWired Input Manager on your scene.
Start / Stop Engine Key
StartEngine
Handbrake Key
Handbrake
Toggle Headlights
Headlights
Change Camera
ChangeCamera
Get In & Get Out Of The Vehicle
EnterExitVehicle
Fire
Fire
Change Ammunation
ChangeAmmo


Current Manager: Rewired Input Manager
Rewired version: 1.0.0.112.U5
Settings
Tools
Joystick Layouts
Joystick Maps
Players
Map Categories
Keyboard Layouts
Keyboard Maps
Actions
Action Categories
Mouse Layouts
Mouse Maps
Input Behaviors
Custom Controllers
Custom Controller Layouts
Custom Controller Maps
Actions:
Category:
0 : Default
Action:
0 : Gas
1 : Steer
2 : Fire
3 : AimX
4 : AimY
5 : StartEngine
6 : Handbrake
7 : Headlights
8 : ChangeCamera
9 : EnterExitVehicle
10 : ChangeAmmo
Properties:
Category
Default
Action Id:
0
Name:
Gas
Descriptive Name:
Gas
Type:
Axis
Positive Name:
T
Negative Name:
G
Input Behavior:
Default
User Assignable:
Edit Categories
UP
DN
New
Ins
Dup
DEL

Players are registered with int 0 to ReWired.

```
void Awake (){

    WheelCollidersInit();       // Getting all wheels and sepe
    SoundsInit();     // Creating new audio sources for eng

    rigid = GetComponent<Rigidbody>();      // Getting rig
    rigid.maxAngularVelocity = RTC_Settings.Instance.max
    rigid.centerOfMass = new Vector3((COM.localPosition.

    // If run engine at awake enabled, it will start the engi
    if(RTC_Settings.Instance.runEngineAtAwake)
        StartEngine();

    #if RTC_REWIRED
    player = Rewired.ReInput.players.GetPlayer(0);
    #endif

}
```

Contact

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Contact@BoneCrackerGames.com